



Human Factors

research and technology division



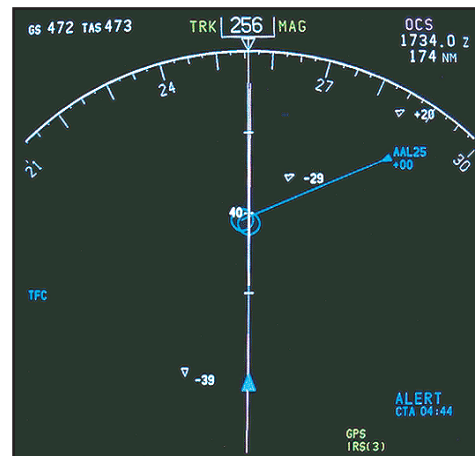
Self-Separation in a Free Flight Environment

Objective

To investigate flight crew and air traffic controller procedures and tools in a self-separation task

Approach

Flight crews and controllers are provided with new technologies and procedures to support flight crew self-separation. Full-mission simulation studies have been conducted involving integration of the air and ground participants. The new tools include a cockpit display of traffic information (CDTI) and airborne alerting logic. Data associated with timing, procedures, aircraft performance, and system performance have been collected to assess the effectiveness of user flexibility in maneuvering.



Impact

Three simulations studies in self-separation have demonstrated the following:

- Flight crews do not always follow clear maneuvering strategies for avoiding conflicts
- When all maneuvers are available to the flight crews in conflict avoidance, heading maneuvers appear to be preferred
- When some escape maneuvers are blocked in a conflict situation, flight crews take significantly longer to detect conflicts in high density traffic compared to low density
- Flight crews often contact other pilots to assess conflict possibility, which may have a

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